

RESOURCING ARMY TRANSFORMATION: SOLID PLAN OR HOUSE OF CARDS?

BY

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USAWC STRATEGY RESEARCH PROJECT

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ABSTRACT

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We are a country at war. We are an army at war. The United States Army is heavily engaged in Afghanistan, Iraq, and other operations in support of our national military objectives. Be assured that achieving success in this post-9/11 environment comes at significant costs. We are also an army that is embarking on a monumental transformation effort. This ambitious plan to modernize and reorganize the force will take 30 plus years and over 210 billion dollars to complete. Meanwhile, the Army is undergoing an increase in the size of the active force that will produce an annual bill of roughly \$6 billion. In the midst of Army force structure growth and transformation, it is projected that mandatory federal entitlements programs will consume increasingly larger shares of our nation's resources. This will likely create mounting pressure on future administrations to balance the federal budget, and "hold the line" on defense spending. There are additional risks associated with transformation cost growth and technological solutions. In all, this begs the question, "does the Army have a solid transformation plan or are we building a house of cards?"

RESOURCING ARMY TRANSFORMATION: SOLID PLAN OR HOUSE OF CARDS?

We have a historic window of opportunity today to transform and do so rapidly...We must take advantage of this extraordinary level of support that we have right now and the [momentum] that we have for this war to reset ourselves for the future. That's why we're moving in such great haste.

—Gen. Peter Schoomaker
Chief of Staff

We are a country at war. We are an army at war. We are also an army that is embarking on a monumental transformation effort. Since 9/11 the United States Army has been heavily engaged in Afghanistan, Iraq, and other operations in support of the Global War on Terrorism (GWOT) and national military objectives. World-wide deployments and increased operational tempo (OPTEMPO) of ground forces in the post-9/11 environment have come at a significant cost—largely underwritten by supplemental defense appropriations. At the same time, the army has unveiled plans to modernize its forces and equipment. This ambitious transformation plan will take 30 years to complete and will require an investment in the range of \$210 billion to \$250 billion.

Meanwhile, the Army is planning an increase in active duty end strength of 65,000 at an annual cost in the neighborhood of \$6 billion. In the midst of Army force structure growth and transformation, it is projected that mandatory federal entitlements programs will consume increasingly larger shares of our nation's resources. This will likely create mounting pressure on future administrations to balance the federal budget, and "hold the line" on defense spending. In addition, there are significant risks within Army's transformation programs. These risks are associated with cost growth and the feasibility of technological solutions. In all, this begs the question, "does the Army have a solid transformation plan or are we building a house of cards?"

The short response to the two-part question posed above is "yes." However, to fully answer the question, it is necessary to dissect the ends, ways, and means of army transformation. For the purpose of this analysis, the ends, ways, and means equate to the Army transformation vision (ends), the plan to fulfill that vision (ways), and the resources available to implement the plan (means). It is also essential to introduce documented concerns and evaluate the risk factors associated with the Army Transformation Plan.

Transformation Vision (Ends)

In 1999, Gen. Eric K. Shinseki, then Army Chief of Staff, pushed for the creation of a "smaller, lighter, more lethal, and more reliable force." Shinseki called for the Army to reorganize into brigade-size combat units that would be able to deploy "anywhere within 96 hours." General

Shinseki unveiled the “way ahead” on 12 October 1999, during the annual convention of the Association of the United States Army (AUSA)¹

Shinseki’s speech kicked off a race to transform the U.S. Army. Although the race would be very fast-paced, it would be no sprint. Instead, the Army was standing at the start line of a long and arduous marathon—one that would be run in relay fashion (from Chief-to-Chief) and that would consume vast amounts of money, time, and effort. Entering into this kind of race is not for the weary. It is fair for one to pause at the start line and pose the following question: “Is the prize at the other end worth the sacrifice that lay ahead?” Therefore, it is useful to begin a discussion on transformation by determining whether a need for change actually exists.

Why Transform?

The United States Army is the world’s premier relevant and ready land force. There is no equal foe on the conventional battlefield who can match the maneuverability, lethality, and survivability of the U.S. Army. The U.S. Army can arguably mobilize and project combat power more efficiently and effectively than any other ground force. It is apparent that when it comes to coordinating efforts and synchronizing effects, no standing ground force does it better than the U.S. Army. So why transform? A brief look at the past, present, and future provides some insight as to why it is necessary to transform this “preeminent” land force.

Fortunately, the U.S. Army does not have to look too far back into its history to substantiate the need to transform. The obligation to adapt the force into something more modular and easier to deploy became apparent in 1999, when the United States agreed to contribute a modest amount of aviation assets to support the NATO-led effort against Serbian forces in Kosovo. What began as an effort to move 24 Apache Attack Helicopters and 465 Army soldiers (needed to operate and sustain the Apaches) from Germany to Macedonia in 8 to 14 days quickly grew to a force of more than 5,000 that took four weeks to deploy. It cost over \$250 million to transport the personnel and equipment into theater. Still, the assets were never introduced into the fight. At the end of the day, pictures of tanks and other army equipment stuck in the mud at the forward operating base further highlighted that the Army might be too heavy to effectively function in the post-Cold War environment. “You had an Army that could kick the living hell out of anyone, but it couldn’t get there,” says retired Lt. Gen. John Riggs, who was the Army’s “objective force director” from 2001 to 2004.²

The Army is not limited to yesterday’s lessons learned to build the case for transformation. Today, the Army can look beyond, and above, its own institution to make the case for transformation. The National Security Strategy, National Military Strategy, and Quadrennial

Defense Review specifically instruct all military departments and services to transform. The President's National Security Strategy outlines the United States' "Grand Strategy" for securing the homeland against attack and protecting national interests across the globe. The 2002 NSS specifically addresses transforming "America's National Security Institutions." The NSS states that the military must transform by:

- developing remote sensors, long-range precision strike capabilities, and transformed maneuver and expeditionary forces;
- developing a broad portfolio of military capabilities to defend the homeland, conduct information operations, and ensure access to distant theaters;
- experimenting with new approaches to warfare;
- exploiting U.S. intelligence advantages; and
- taking full advantage of science and technology.³

The National Military Strategy (NMS) issued by the Chairman of the Joint Chiefs of Staff in 2004 directs the Armed Forces to transform "in stride." In other words, the military services are charged with fielding new capabilities and adopting new operational concepts, while actively taking the fight to the terrorists. The NMS adds that transformation requires a combination of technological, intellectual and cultural adjustments. The NMS emphasizes, "in-stride transformation will ensure US forces emerge from the struggle against terrorism with our joint force fully prepared to meet future global challenges."⁴

The latest strategy guidance that prods the Army to transform is the 2006 Quadrennial Defense Review (QDR).⁵ The QDR articulates that, as part of a process of continuous change, the Department's capabilities and forces will be reoriented over time. This reorientation is designed to shift the joint force (1) from dependence on large, permanent overseas garrisons toward expeditionary operations utilizing more austere bases abroad; (2) from focusing primarily on traditional combat operations toward greater capability to deal with asymmetric challenges; and (3) from de-conflicting joint operations to integrated and even interdependent operations. The QDR underscored Army transformation initiatives through the following decisions:

- rebalance capabilities by creating modular brigades in all three Army components;
- transform Army units and headquarters to modular designs; and
- incorporate Future Combat System (FCS) improvements into the modular force.⁶

An inventory of the Army's aging fleet of armored combat vehicles—composed primarily of tanks, fighting vehicles, personnel carriers, and self-propelled howitzers—provides additional incentive to transform. Figure 1, published by the Congressional Budget Office (CBO), portrays how the Army's fleet has been shrinking since 1995.⁷ Perhaps the reduction in the size of the

fleet was partly attributable to a corresponding shrinkage of the force. Still, the Army faced additional challenges associated with the aging of its equipment. Many of the 32,000 vehicles in remaining in the inventory at the end of 2003 had been on the books for over 18 years. At that time, the average age of the fleet was roughly 12 years.⁸ While the fleet could be replaced with like platforms, it is wise to consider regenerating the force with more modern equipment, better suited for today's operating environment.

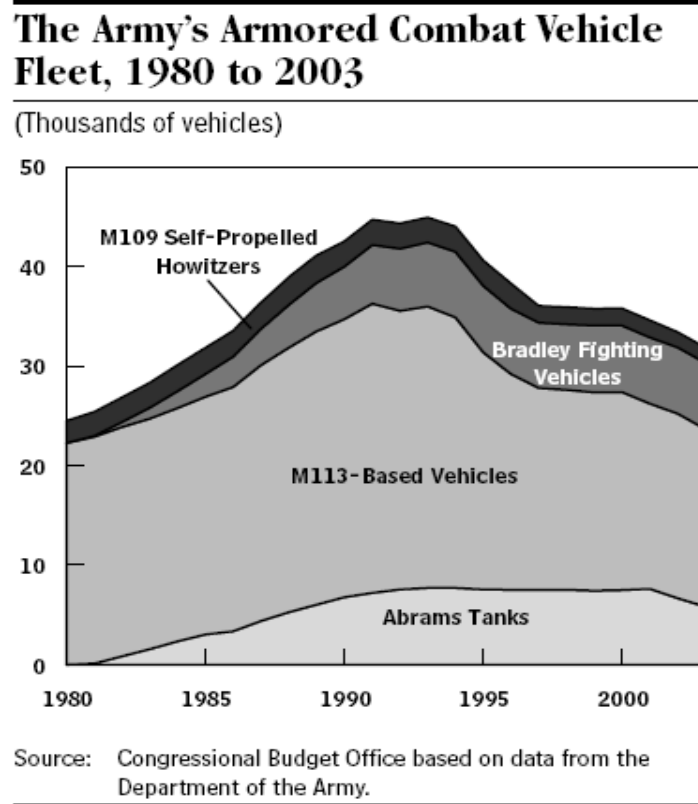


Figure 1. Combat Vehicles in Army Inventory

There are other factors, past and present, substantiating the need for the Army to transform. Modernization of the force seeks to provide a solution to the challenges that are anticipated in the future security environment, but it does not happen over night. Transformation is imperative when the nature of the issues expected to confront our nation tomorrow, compel change today. The combination of an increasingly flattening world and the shortening of the lessons learned cycle provide a glimpse of the battlefield of tomorrow. If operations in Afghanistan, Iraq, the Horn of Africa, and Southwest Asia are any indication of what future warfare holds for the U.S. Army, we will face an adaptable enemy in an extremely non-permissive, difficult to access, environment. It is increasingly important for the Army to get to the

fight quickly, defeat the enemy swiftly, and set the conditions for a lasting peace without a lasting military presence.

The Army must transform in order to more effectively achieve its two core competencies: (1) train and equip Soldiers and grow leaders; and (2) provide relevant and ready land power capability to the Combatant Commanders as part of the Joint Team.

What is Transformation?

The Army leadership determined that the Army must transform in order to perform its core tasks and achieve its vision of being a “relevant and ready land power.” The Army published two documents in 2006—the *Army Posture Statement (APS)*⁹ and the *Army Modernization Plan (AMP)*¹⁰—that are key to translating the Army leadership’s definition of transformation. The APS and AMP outline the three main components of the Army’s transformation strategy: (1) culture, (2) processes, and (3) capabilities. The component that is by far the most costly and far reaching is the transformation of Army capabilities. It encompasses the transition to a modular Army and the development and fielding of Future Combat Systems. The 2006 APS captures the transformation objectives of the U.S. Army as follows:

While fighting, we are preparing Soldiers and leaders for the challenges that they will face. We continue to transform, to modernize, and to realign our global force posture. Our Army continues to evolve from a force dependent on divisions to deter and to wage war against traditional adversaries, to a force dependent on modular brigades, specially designed for the full range of non-traditional adversaries and challenges it will face.¹¹

The APS adds that the Army—with the support of the President, the Congress, and the Secretary of Defense—has “developed and resourced a fully integrated plan” to confront the issues of today and tomorrow.¹² For certain, the Army will need all the help it can get in achieving its historically lofty transformation goals. The remainder of this paper will focus on the ends, ways, and means of the (1) Army Modular Force and (2) Future Combat System (FCS).

The Army Modular Force Initiative.

The modular conversion effort is the greatest restructuring of Army forces since World War II, and it affects nearly every combat and support organization in the Army formation. According to the 2006 APS, there are three primary goals for reorganizing into a modular, brigade-based force:

- increase the number of available Brigade Combat Teams (BCTs) to meet operational commitments while maintaining combat effectiveness;

- create brigade-based combat and support formations of common organizational designs that can be easily tailored to meet the varied demands of the Geographic Combatant Commanders; and
- re-design organizations to perform as integral parts of the Joint Force.¹³

The foundation of the modular force is the creation of modular Brigade Combat Teams (BCTs). The BCTs are maneuver units with a common organizational design, intended to increase the rotational pool of ready units. The modular combat brigades, illustrated in Figure 2, will have one of three standard designs—heavy brigade, infantry brigade, or Stryker brigade.¹⁴

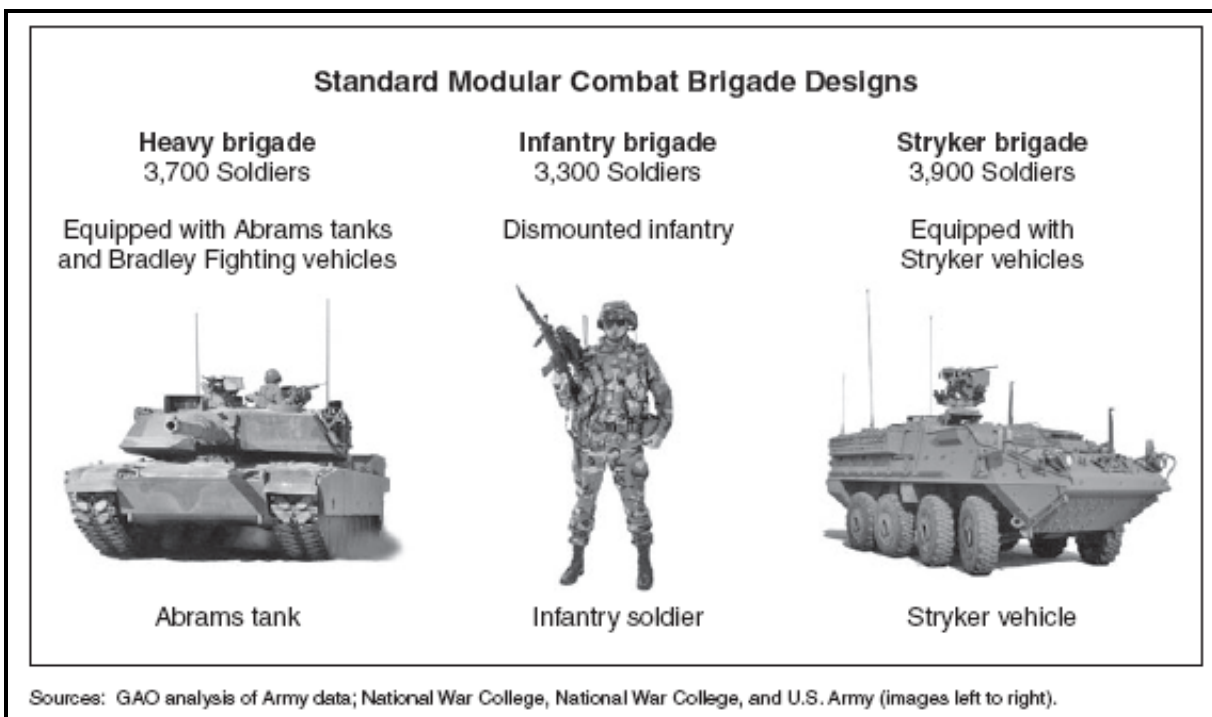


Figure 2. Standard Modular Combat Brigade Designs

A heavy combat brigade under the modular structure will have roughly the same number of soldiers but fewer “combat” units than a similar pre-modular formation. The modular combat brigades are designed to be self-contained units, with more trucks and fewer armored vehicles—compared with a pre-modular mechanized infantry or armored brigade combat team. According to the APS, future BCTs will consist of three Combined Arms Battalions, one Non-Line-of-Sight (NLOS) Cannon Battalion, one Reconnaissance Surveillance and Target Acquisition (RSTA) Squadron, one Forward Support Battalion (FSB), one Brigade Intelligence and Communications Company (BICC), and one Headquarters Company.¹⁵

Although the Army's modularity initiative is designed to make its combat forces more flexible and responsive, the initiative will not reduce the time required to deploy to remote locations. The equipment proposed for a heavy modular brigade will weigh as much as the equipment associated with a typically equipped pre-modular armored or mechanized infantry brigade combat team.¹⁶

The Future Combat System Initiative.

To address the strategic mobility issues of the modular force, the Army initiated the Future Combat Systems (FCS) program—the second key component of Army transformation. The FCS is the Army's modernization program. It consists of a family of manned and unmanned systems, connected by a common network, which enable the modular force. Figure 3 depicts the “14+1+1” core systems that make up the FCS.¹⁷

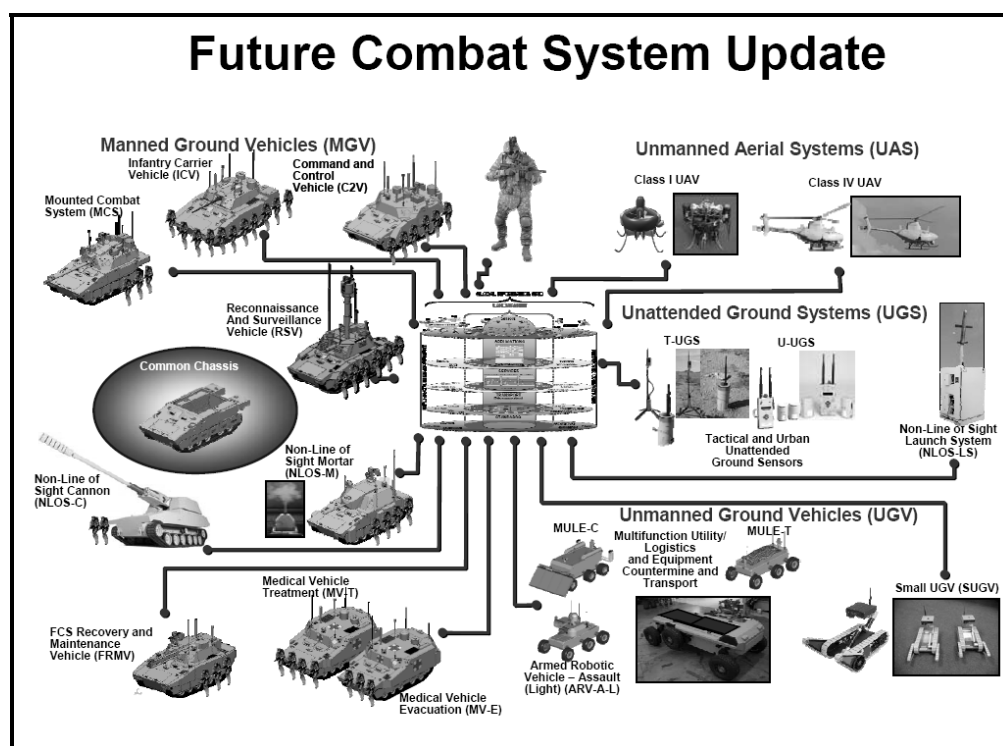


Figure 3. The Future Combat System (14+1+1).

The intent of FCS is to achieve a joint, networked (connected via advanced communications) system of systems (one large system made up of 14 individual systems, the network, and most importantly, the Soldier—14+1+1). The FCS is connected via an advanced network architecture designed to enable the next generation of joint connectivity, situational awareness, and synchronized operations. The FCS network consists of four overarching

building blocks: System-of-Systems Common Operating Environment (SOSCOE); Battle Command (BC) software; communications and computers (CC); and intelligence, reconnaissance and surveillance (ISR) systems.¹⁸ Together, modularity and FCS provide soldiers and leaders the capabilities needed to dominate in complex operating environments.

The Cost of Transformation.

Transformation is viewed as a continuous process, which means that any attempt to capture its total costs will only serve to provide a snapshot in time. If transformation is a moving target, then putting a price tag on it is akin to hitting that same target in the dark. In an article published in the summer of 2006, an official from DOD's Office of Force Transformation (OFT) stated:

...transformation is far more than a list of programs. The concepts, capabilities, and organizations developed through innovative ideas, experimentation, major training exercises, and assessment of lessons learned on the battlefields of Afghanistan and Iraq cannot be categorized under a transformation line item in the defense budget.¹⁹

To date, the Army has a poor track record when it comes to providing clarity and transparency in estimating the cost of the future force. If the Army is looking to Congress and future administrations to resource these and other major investment programs over the long run, it is imperative that reliable cost estimates be formulated and published. For now, Congress and others must rely on the analysis of the Congressional Budget Office (CBO), the Governmental Accountability Office (GAO), the Office of the Secretary of Defense' (OSD) Cost Analysis Improvement Group (CAIG), and other independent agencies to provide a best guess analysis of the total cost of Army transformation.

Although the Army has been converting to the modular force since 2004, accurately identifying the cost of these efforts has proven difficult. One of the biggest obstacles to costing modularity is that the current accounting system does not specifically capture obligations incurred by units in transition to a modular structure. Also, much of the cost of modularity is being financed with supplemental appropriations.²⁰ According to a September 2006 GAO Report to Congress, the Army's cost estimate for modularity through fiscal year 2011 is \$52.5 billion. GAO adds, "Army leaders have recently stated they may seek additional funds after 2011 to procure more equipment for modular restructuring."²¹ Table 1 provides a breakdown of the estimated cost of modularity through 2011.²²

Dollars in billions									
	2005	2006	2007	2008	2009	2010	2011	Total	Percentage
Equipping	\$4.7	\$5.8	\$5.4	\$5.9	\$6.5	\$6.7	\$6.0	\$41.0	78
Military construction/ facilities	0.3	0.0	0.5	0.5	1.5	1.5	1.5	5.8	11
Sustainment and training	0.0	0.7	0.7	1.2	1.1	1.0	1.0	5.7	11
Total	\$5.0	\$6.5	\$6.6	\$7.6	\$9.1	\$9.2	\$8.5	\$52.5	100

Source: GAO analysis of Army data.

Table 1. Total Modularity Costs.

The FCS program represents by far the largest single investment that the Army plans to make over the next 20 years. CBO reported in August 2006 that the total cost of the FCS program through 2025 is \$162 billion (see Table 2).²³

(Billions of 2006 dollars)			
	Research and Development	Procurement	Total Acquisition
Administration's Plan			
Costs Included in the President's Budget			
FCS Program's Increment 1 ^a	21	101	122
Upgrades to existing vehicles	0	6	6
Further Costs as Estimated by CBO			
Continued purchases of FCS components, 2023 to 2025	0	18	18
Additional upgrades to existing vehicles ^b	2	15	17
Total	23	139	162

Source: Congressional Budget Office based on data from the Department of the Army.

Note: The estimated costs presented in this table do not take into account the possibility that costs may grow as they have in similar defense programs in the past.

FCS = Future Combat Systems.

a. Includes costs to develop and purchase the first 15 brigades' worth of FCS components—enough to equip slightly more than half of the Army's planned 27 heavy brigades (19 brigades in the active Army and eight brigades in the Army National Guard).

b. Includes upgrades to Abrams tanks, Bradley fighting vehicles, M113-based vehicles, and M109 howitzers to maintain a relatively constant average age for each fleet of vehicles after 2011.

Table 2. Total FCS Acquisition Costs, Fiscal Years 2007 - 2025.

An analysis conducted by CBO concluded that the annual cost of FCS is much higher than the Army's estimate of \$8 - \$10 billion. CBO projects that the annual cost will grow to between \$13 billion and \$16 billion. The total program cost—R&D and Procurement—is expected to range from \$160 billion to \$173 billion (in 2006 dollars). CBO references an

independent estimate submitted to Congress in June 2006 by the CAIG to support its estimate.²⁴

Depending on whom you ask, the total cost of implementing and fielding FCS is \$160 billion to \$200 billion. Why such a huge gap between estimates? The Army contends that projections made by external entities do not use the same basis of comparison. Specifically, they combine constant-dollar valuations with inflation-adjusted estimates. Many independent assessments also add complementary programs to their FCS cost models. The Army response to this claim is that these “add-on” programs would exist with or without FCS and, thus, should not be counted as part of the FCS bill.²⁵

It is apparent that many estimates fail to factor in the cost savings that would be realized through the divestiture of legacy platforms. Whatever the true cost of FCS, all can agree that this is an historical investment in Army modernization that will require a sizable commitment of resources over the next two plus decades.

For now, it appears that the total cost of Army Transformation—the Modular Force and FCS—will be in the neighborhood of \$233 billion. This estimate includes \$180 billion for FCS, splitting the difference between the high estimate (\$200 billion) and low estimate (\$160 billion), and \$53 billion for modularity. Any way you slice it, the transformation bill is a big elephant to eat. It appears that the Army is developing a strategy that aims to eat the elephant one bite at a time.

Advancing the Army Transformation Vision (Ways)

As previously stated, the Modular Combat Force and FCS are the two primary components of the Army transformation plan. Understanding what transformation is and why it is important results in an appreciation for the Army’s transformation vision (ends). However, the Army must have a plan (ways) for converting its vision to a reality. The plan should include a transformation timeline, technological and acquisition solutions, and a viable funding strategy.

The Transformation Timeline.

The Army’s timeline for converting to a modular force and fielding the FCS is illustrated below (see Figure 4).²⁶ The Army plans to build a total of 70 BCTs. According to the APS, the Army has converted or activated a total of 32 BCTs. The Army has also created organizational designs and modular conversion sequences for modular headquarters, support brigades, and functional brigades that comprise over 70 percent of the Army’s operating forces. The Army anticipates that most combat formations and headquarters will be completed by 2008, theater

army headquarters will be completed by 2009, and support brigades will be completed by 2011.²⁷

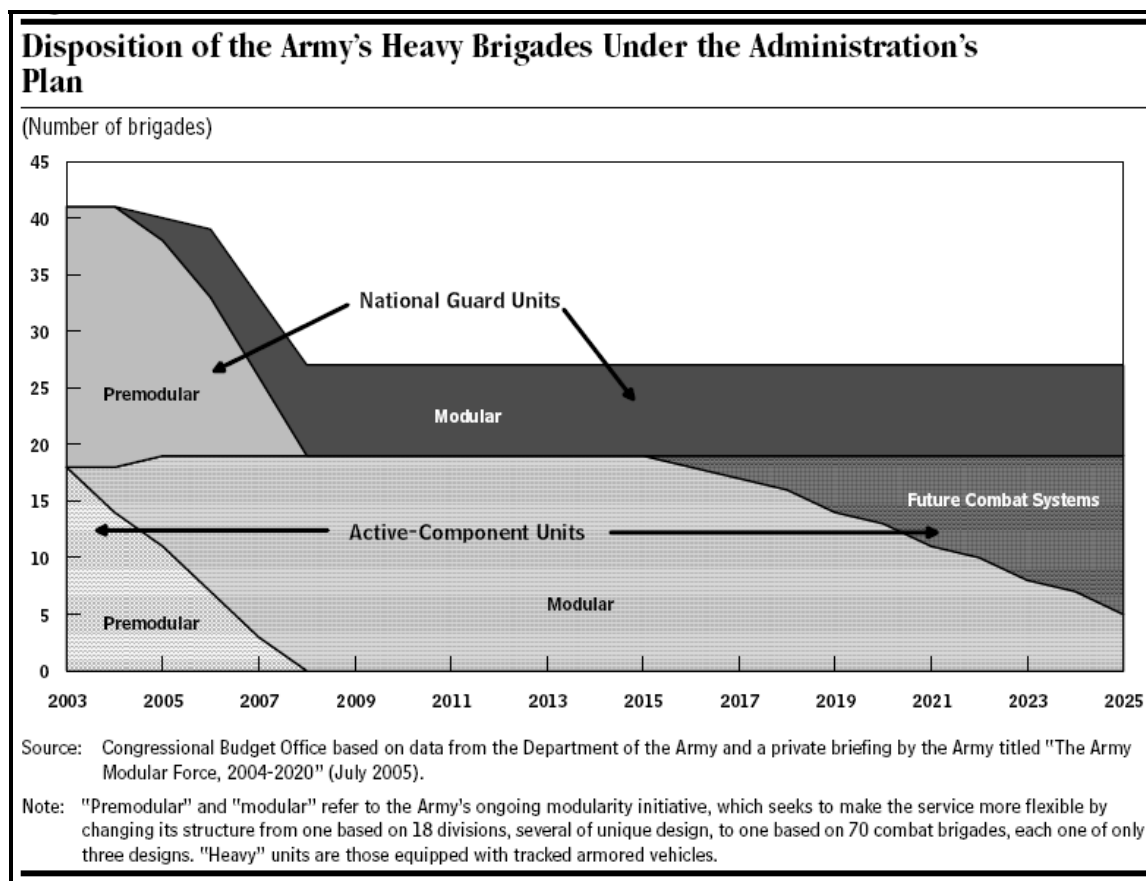


Figure 4. Disposition of the Army's Heavy Brigades Under the Administration's Plan.

The Defense Acquisition Board approved the FCS acquisition program in May 2003. In July 2004, the Army announced a major restructuring of the FCS program, including plans to accelerate the delivery of selected FCS to the current force. The new program, now in the System Development and Demonstration (SDD) phase, is operating under the schedule depicted in Table 3.²⁸ The restructured plan expands the scope of the program's SDD phase by adding four discrete "spin outs." The Army contends that this adjustment will allow new capabilities to be introduced every two years. Note that FCS will not reach its full operational capability until 2017. Once this occurs, it will take until 2035 to fully field the FCS to all designated units.²⁹

Restructured FCS Program Schedule

Event	Date (FY)	Event description
Milestone B Update	May 2005	Milestone B approves entry into System Development and Demonstration Phase (SDD).
Preliminary Design Review	2008	A technical review to evaluate the progress and technical adequacy of each major program item. It also examines compatibility with performance and engineering requirements. (Part of SDD Phase)
Critical Design Review	2010	A technical review to determine if the detailed design satisfies performance and engineering requirements. Also determines compatibility between equipment, computers, and personnel. Assesses producibility and program risk areas. (Part of SDD Phase).
Design Readiness Review	2011	Evaluates design maturity, based on the number of successfully completed system and subsystem design reviews. (Part of SDD Phase).
Milestone C	2012	Milestone C approves the program's entry into the Production and Deployment (P&D) Phase. The P&D Phase consists of two efforts — Low Rate Initial Production (LRIP) and Full Rate Production and Deployment (FRP&D). The purpose of the P&D Phase is to achieve an operational capability that satisfies the mission need.
Initial Operational Capability (IOC)	2015	IOC is defined as the first attainment of the capability to employ the system as intended. (Part of the P&D Phase).
Full Operational Capability	2017	The full attainment of the capability to employ the system, including a fully manned, equipped, trained, and logistically supported force. (Part of the P&D Phase).

Note: Event descriptions in this table are taken from the Defense Acquisition Acronyms and Terms Glossary published by the Defense Acquisition University, Fort Belvoir, Virginia, 11th ed., Sept. 2003.

Table 3. Restructured FCS Program Schedule.

The Army's Plan for Resourcing Transformation.

The modularity piece of the transformation equation is well underway. It is being financed with the combination of baseline funding and supplemental appropriations. The Army's Fiscal Year (FY) 2007 Procurement budget included \$5 billion for the Army Modular Force. The plan is to use this funding to purchase equipment "required by Soldiers to move, shoot and communicate in the new modular Brigade Combat Teams."³⁰ The out-year costs associated with converting to the Army Modular Force will likely be included in the Future Years Defense Plan (FYDP) and in the annual budgets submitted by the Department of Army to the Office of the Secretary of Defense (OSD), for inclusion in the President's Budget.

Since FCS is still in the development stage, the vast majority of the resources required to fully implement the system will not be needed within the current FYDP. Congress appropriated \$3.4 billion in RDT&E in FY 2007. A request for an additional \$3.7 billion in RDT&E was included in the FY 2008 President's Budget, submitted to Congress on 5 February 2007.

Operating under the philosophy that help comes to those who help themselves, Secretary of the Army, Francis Harvey said, "if the coffers come up short, the Army will ensure full funding through business transformation."³¹ Secretary Harvey added:

We have a FYDP which was developed. That's the baseline plan. Where I want to get cost savings is through this business transformation initiative. . . We're going to drive down the cost of doing business...We have a methodology I have been using for 25 years. Today it is called Lean Six Sigma, and it's a way to take work out of the system.³²

Allocating Resources to Army Transformation (Means).

Having a vision (ends) and plan (ways) for undertaking a task as huge as Army Transformation is a necessary place to begin. But, in today's resource environment, it is only a start. The \$200 billion dollar question remains, "will the Army be able to acquire the resources needed to fully develop and implement its transformation plan?" The ends and ways are important, but without the means—resources—to complete the transformation race, it is senseless to even take up a position at the starting block. This section of the paper (1) provides an explanation of how federal resources are allocated, (2) looks at some historical trends associated with the allocation of those resources, and (3) examines the risk factors related to our nation's fiscal outlook.

It is necessary to begin the discussion about the strategic means of Army Transformation with an understanding of how resources are attained for all federal programs. The simple answer is that the American people pay the bill. However, a critical component to "seeing the

big picture” clearly is having an appreciation for the complexities of the funding process. This includes an understanding of the inherent risk associated with competing for national resources.

In February of each year, the President submits his budget to Congress. This budget recommends future revenue (attained through taxes and borrowing) and spending levels. Congress is responsible for enacting legislation “authorizing” future spending and “appropriating” federal funds. Once annual Authorization and Appropriation Bills work their way through Congress, they are delivered to the President—for his signature or veto. The two broad areas of federal outlays (spending) are categorized as discretionary and non-discretionary. Two of the 13 annual discretionary appropriations are specifically designed to fund Department of Defense (DOD) programs—Defense and Military Construction.

Historical Allocation of Federal Funds.

There are several trends in the allocation of federal funds that could eventually impact the funding of Army transformation. To begin, the percentage of funds appropriated for discretionary programs (including Defense) has steadily decreased in relation to non-discretionary (mandatory) entitlements—Social Security, Medicare, and Medicaid. Figure 5 depicts this “squeezing” of discretionary spending over the past 40 years.³³ Amazingly, discretionary spending programs have gone from representing about two-thirds of total federal outlays to about one-third of total outlays. This steady shift in federal spending began when President Johnson initiated the “Great Society” in the 1960s.³⁴

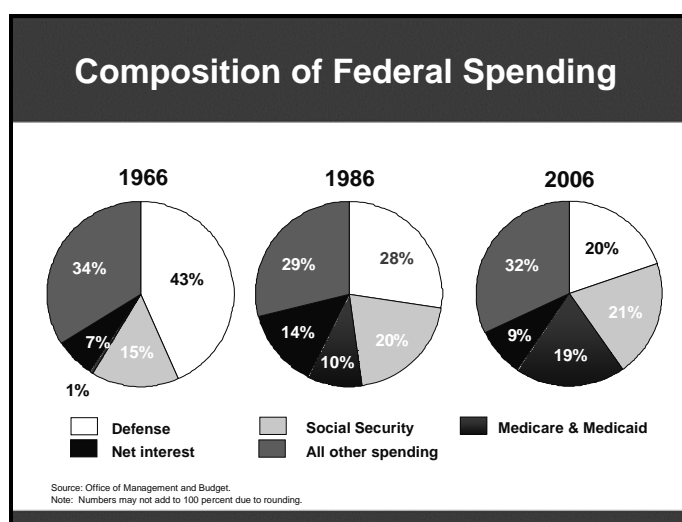


Figure 5. Defense Spending in Comparison to All Other Federal Spending.

The picture worsens when isolating the trend in Defense spending as a percentage of total federal outlays. Figure 5 illustrates that Defense spending in 2006 (20%) is less than half of

what it was in 1966 (43%). Increases in Social Security (six percentage points) and Medicare/Medicaid (18 percentage points) have been offset largely by a corresponding decrease in defense spending (versus other discretionary programs). The CBO identified the cumulative result of this trend during a review of the FY 2000 defense budget. The analysis concluded that defense appropriations were at least \$50 billion short of what was needed to maintain “steady state.” It was further estimated that \$37 billion of the shortfall resided in procurement accounts.³⁵

While defense budgets have steadily decreased in relation to other federal programs since the 1960s, total defense outlays have risen sharply since September 11, 2001. In fact, defense spending (including supplemental funding) has risen by more than 75% from FY 2001 to FY 2007. Nonetheless, the DOD has not gained a greater share of the “federal pie.”

Budget Deficit/Surplus

Another important piece of the national economic equation is the net total of national revenues and expenses. By extension, the fiscal outlook of our nation affects the potential resources available for Army Transformation. When revenues are higher than expenses the budget is in surplus. Conversely, when spending is greater than revenues the result is a budget deficit. If the nation consistently produces deficit spending, it may have a negative impact on national savings and reduce future national income.³⁶ The United States Government has managed a surplus in only 12 of the last 75 years. Figure 6 portrays surpluses and deficits as a percent of Gross Domestic Product (GDP).³⁷ It appears as though the trend in deficit spending resulting from the economic recession of 2000-2001, the 9/11 attacks, and the Bush tax cuts has reversed.

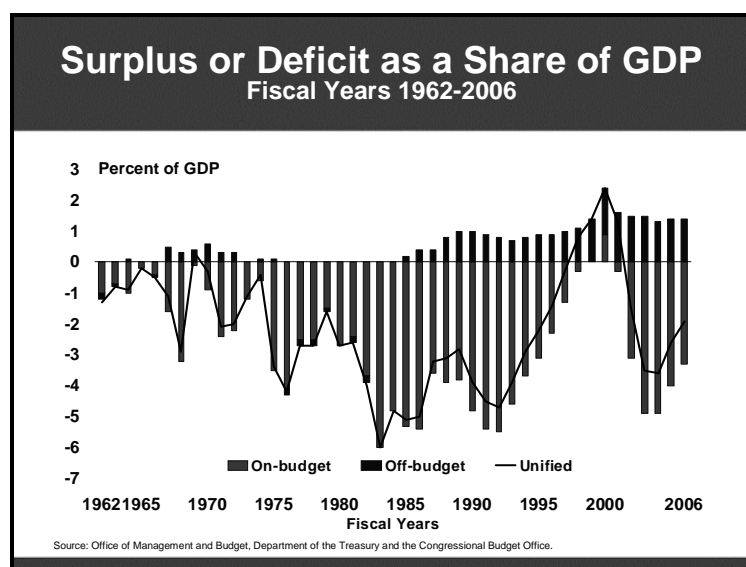


Figure 6. Federal Surplus or Deficit.³⁸

The Fiscal Outlook

The historical allocation of federal funds and trends in federal revenues and outlays serve as a foundation for projecting the fiscal outlook of the United States Government. It is in the future fiscal environment that the Department of Defense (DOD) and the United States Army will compete for resources.³⁹ Economic and political conditions such as inflation, deficit spending, and budgetary priorities can directly impact the size and share of the DOD budget in the short-term. However, it is the long-term fiscal outlook that may well define the fate of Army Transformation.

The Congressional Budget Office (CBO) recently released a “Budget and Economic Outlook” for Fiscal Years 2008 to 2017. It foresees a favorable fiscal outlook over the next ten years. Assuming current fiscal and monetary policies remain unchanged, CBO estimates that the budget deficit will equal roughly one percent of GDP through 2010. The CBO analysis concludes that the budget will be “in balance” from 2011 until 2017.⁴⁰ Unfortunately, this positive short-term and mid-term outlook may only be the calm before a gathering long-term economic storm.

Numerous studies and reports issued by the Congressional Budget Office (CBO), the Government Accountability Office (GAO), and the Office of Management and Budget (OMB) conclude that the long-term fiscal outlook (10-50 years) is not good. The underlying problem is not a projected weakening of the economy or decrease in revenues (although some argue that federal taxes should be higher). Instead, the issue is the inevitable economic train wreck that will occur if mandatory entitlement programs continue on their current glide path. Some project that by 2050, outlays for mandatory entitlements could easily equal over 20 percent of GDP. As a contrast, today’s entire federal budget is about 20% of GDP.

President Bush has also weighed in on the looming economic tsunami. He strongly states that the growth in mandatory entitlement programs is unsustainable:

In the long term, the biggest challenge to our Nation’s fiscal health comes from unsustainable growth in entitlement spending. Entitlement programs such as Social Security and Medicare are growing faster than our ability to pay for them...these unfunded liabilities will put an increasing burden on our children and our grandchildren.⁴¹

Be assured that funding of major acquisition programs such as FCS do not happen independent of outside variables. The fiscal outlook of the nation is a major factor that can serve to create opportunity or risk for federal programs. The current administration has put tremendous amount of pressure on DOD, and other federal departments and agencies, to “hold the line” on spending. As pressure mounts to balance the budget and generate non-revenue

increasing solutions to the pending entitlement crisis, the Army can not assume its transformation initiatives are “off the table” as potential “bill payers.” Unfortunately, this is not the only variable generating risk for Army Transformation.

Other Risk Factors Associated With Army Transformation.

As if the long-term fiscal outlook is not enough reason for the naysayers to pull the plug on Army Modularity and FCS, there are other immediate obstacles to their success. A 2006 Congressional Research Service (CRS) Report for Congress noted, “the FCS program has received a great deal of scrutiny from both governmental and non-governmental organizations.”⁴² This scrutiny derives from perceived risk associated with the program. In addition to the FCS risk factors mentioned in the CRS report, there are other valid concerns about Army Transformation. Among these risk factors are: (1) the potential waning of supplemental appropriations, (2) rising military personnel costs, (3) technological challenges, and (4) anticipated growth in program costs.

The total projected cost of converting to a modular force exceeds \$52 billion through FY 2011.⁴³ Since the Army budget only includes \$25 billion to fund its modularity plan (FY 2006 to FY 2011), the service is likely to come up short without supplemental funding. In December 2004, Deputy Defense Secretary, Paul Wolfowitz, issued Program Budget Decision (PBD) 753. The document directed the Army to fund modularity in FY 2005 and FY 2006 with \$5 billion a year in money from supplemental appropriations. In addition, PBD-753 directed the Army to come up with a long-term plan to fund the program and to find \$14 billion in offsets in FY 2007. The Army’s response was to institute business transformation initiatives and force generation efforts. Still, the Army comes up \$7 billion short and will continue to rely on Congress to fund personnel and reset costs with supplemental appropriations.⁴⁴ It appears unlikely that the Army will be able to maintain its present rate of modularization without the reset program. Furthermore, the Army will not be able to continue its efforts to reset the force without the resources currently generated through supplemental appropriations.

While the overall size of the defense budget varies with changing economic conditions and shifting threats to our national security, some elements of the budget remain relatively constant. One variable that has remained fairly stable is the percentage of funds allocated to Army Operations and Maintenance (O&M). An Association of the United States Army (AUSA) analysis of the FY 2007 Army Budget reveals that O&M remained at about 30 percent of the budget from 1990 through 2005. At the same time the Military Personnel (MILPERS) increased

by 11 percentage points (of the total budget), while Acquisition Accounts—RDT&E and Procurement—decreased by more than 14 percent.⁴⁵

These rising military personnel costs put the Army's Transformation Plan at risk. In general, increases in military personnel costs will compete for the same funds needed for Army modernization programs. The CRS report referenced above suggests that these costs will continue to consume a larger share of the DOD budget. The rising price of sustaining an all volunteer force are due to increased costs associated with recruiting and reenlistment bonuses, housing allowances, health care benefits, and military pay raises.⁴⁶

At one time, DOD, and the Army, planned to offset these costs by streamlining the force. It now appears that this "downsizing" will not take place. In fact, the Army recently took a 180-degree turn. It is now on the road to "upsizing" the force. Secretary of Defense Robert Gates announced on January 11, 2007, that the Army end strength would grow from 482,400 to 547,000 by 2012. The President included the request in his annual State of the Union Address to Congress. The President recommended that Congress, "authorize an increase in the size of our active Army and Marine Corps by 92,000 in the next five years."⁴⁷

Using the Army's own estimate, GAO recently reported that the annual cost of adding 10,000 soldiers to the roles was about \$1.2 billion. This amount would only cover basic pay, housing allowances, recruitment and retention bonuses, incentive pay and allowances, and other special pay.⁴⁸ Using a little simple math to calculate the cost a 30,000 increase in end strength (already on the books) produces a "sustainment" bill of \$3.6 billion in FY 2007. The cost of incrementally adding 5,000 soldiers is roughly \$600 million a year. The cumulative annual costs caps out at \$6.6 billion (constant dollars) in FY 2012, when the end strength reaches the desired level of 547,000.

In addition, there are concerns about the technological readiness of various FCS components. The GAO and other defense experts have expressed a number of reservations about the Army's ability to implement the FCS program in its current form. A 2004 GAO report concluded, "FCS was at significant risk for not delivering required capability within budgeted resources, primarily due to the immaturity of a significant number of key FCS technologies."⁴⁹ Many defense analysts have questioned whether the planned FCS components will be ready to go into production in 2012.⁵⁰

The immature FCS technological solutions contribute to another transformation risk factor—program cost growth. As stated earlier, the estimated cost of the FCS program now stands at \$162 billion. This is an astonishing increase of 76 percent above the Army's original estimate of \$91.4 billion. According to some experts, FCS program costs could reach the \$200

billion range as complementary programs and slippages in the time table are factored into the total estimate. Although the Army has taken steps it believes will control FCS costs, the relative infancy of the program makes it difficult to have a solid basis for cost projections.⁵¹

The fear of program cost growth is not limited to FCS. While the Army has made great strides in solidifying the cost estimates associated with modularity, concerns remain about program growth. Summarizing a 2006 GAO report on the uncertainty surrounding Army Modularity:

The Army faces significant challenges in managing costs and meeting equipment and personnel requirements associated with modular restructuring in the active component and National Guard...The Army's cost estimate for completing modular force restructuring by 2011 has grown from an initial rough order of magnitude of \$28 billion in 2004 to \$52.5 billion currently. Although the Army's most recent estimate addresses some shortcomings of its earlier estimate, it is not clear to what extent the Army can achieve expected capabilities within its cost estimate and planned time frames for completing unit conversions.⁵²

In a March 2006 testimony to the Senate Armed Service Committee (SASC) Subcommittee on Air-Land Battle, the GAO testified that the FCS program lacked a "sound business case." The missing elements of the FCS program were reported to be firm requirements, mature technologies, a knowledge-based acquisition strategy, a realistic cost estimate, and sufficient funding.⁵³ Even if the Army can adequately address these concerns, there is no guarantee that sufficient resources will be available to fully fund its transformation initiatives to completion. It will take a monumental effort just to keep modularity and FCS alive through the end of the current FYDP (FY 2013).

Balancing the Ends, Ways, and Means

Arguably, the Army has made a clear case for "why" it must transformation. Given the current threat environment, a generally positive short-term fiscal outlook, and a modest level of support from the current administration, the timing may well be right to make the Army vision a reality. However, there must be a balancing of the ends, ways, and means in order for the Army's transformation initiatives to come to fruition. This alignment of the vision, plan, and resources must begin within the Army. But, the President and Congress must work together to overcome the greatest obstacles to Army transformation.

For the Army's part, it must first address the issues concerning the transformation timeline and costs. The GAO insists, "The Army is not meeting its near-term equipping goals for its active modular combat brigades." However, GAO recognizes that the Army is mitigating this risk

by “providing priority for equipping deploying units and maintaining other units at lower equipping levels.”⁵⁴

The Army has even greater challenges to overcome with FCS. At the top of the list are the technological and funding hurdles that must be cleared if the Army is to develop and field all of the individual FCS components as currently scheduled. The Army is responding to these challenges through its plan to “spin-out” selected technologies. Spin out one will begin fielding in 2008 and consist of prototypes fielded to an Evaluation Brigade Combat Team (EBCT). Production and fielding will commence following the successful evaluation of spin out one in 2010. This cycle will be repeated for each successive spin out. By 2014, the EBCT will be equipped with all FCS core systems. Remaining BCTs will have selected embedded FCS capability.⁵⁵ The Army expects the first combat brigade to be equipped with all 14 systems in December 2014. After that, the service plans to equip its combat brigades with FCS components at a maximum rate of 1.5 brigades per year, procuring 15 brigades’ worth of equipment as part of the first installment. Under the current schedule, equipment for the 15th brigade would be purchased in 2023, allowing fielding of those systems to begin in 2026.⁵⁶

Even with the recent realignment of the FCS plan, the Army may have to eliminate some of the component systems in order to reduce costs and keep the program on track. The reduction of select unmanned air and ground vehicles—that are deemed underdeveloped or redundant—may serve as “sacrificial lambs” as the Army attempts to keep the overall system-of-systems intact.

Perhaps the most effective way the Army can help itself is to fully communicate the plan to DOD and Congress. In doing so, the Army must remain transparent about where it stands on the overall transformation effort. More to the point, it is imperative that the Army partner with these institutions. Otherwise the transformation vision will be reduced to an illusion. The painful truth is that GAO, CBO, and other agencies are conveying a similar message—the Army does not have adequate cost estimates and has failed to make a good business case for transformation. If the Army is going to turn the tide of criticism it must demonstrate that it does have a solid plan. Finally, the Army must ask for assistance in filling all identified gaps in the transformation plan.

There are other risk factors that are beyond the capacity of the Army to fix. First, the Army is starting the race to transform at a deficit. Figure 7 depicts the “shrinking” of the DOD budget (relative to GDP) over the past 60 years.⁵⁷ It is apparent that the Army, and its sister services, are the victims of a reduction in military spending, which began in the early 1990s. Current

estimates put the cumulative DOD baseline shortfall at over \$100 billion. It is likely that the gap will continue to grow even wider if DOD budgets continue to shrink (relative to GDP).⁵⁸

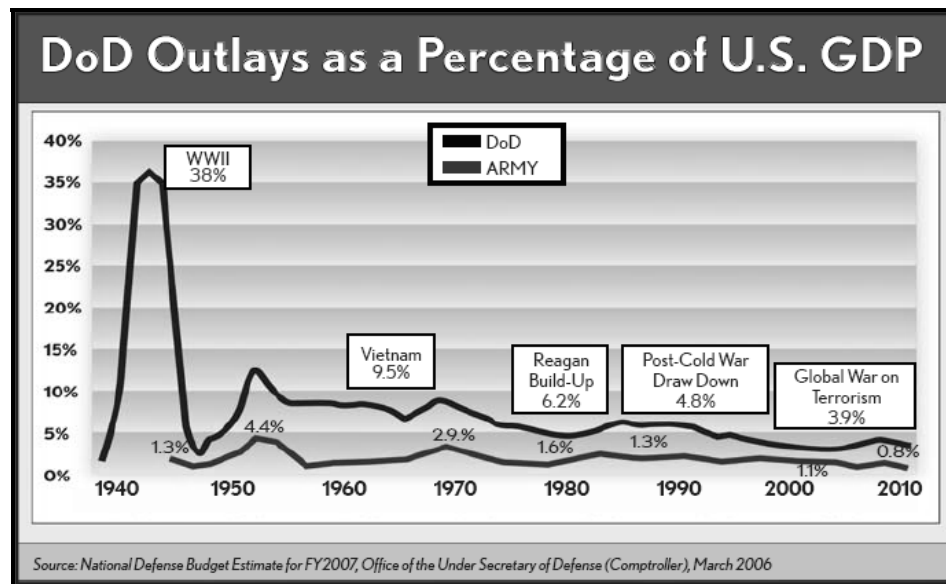


Figure 7. DOD and Army Outlays as a Percentage of GDP.

The military has recently achieved increased buying power—with the help of supplemental appropriations. However, defense spending remains at historically low levels when compared to the capacity of our nation to generate resources. The current level of funding budgeted for the DOD is arguably inadequate to fully resource the GWOT. Certainly, a greater commitment of national wealth is needed in order to sustain the current force and close the modernization gap.

It would not be advisable to return to World War II level spending (38 percent of GDP). But, it is fair to question why defense outlays do not even reach five percent of GDP in a post-9/11 world. It will be impossible for the services to climb their way out of the procurement hole that has been dug for them unless the President and Congress allocate substantially more resources to the defense spending. The Army is in no better shape than the rest of the services. Accordingly, modularity and—to a greater extent—FCS risk failure if the long-term trend is not reversed.

However, the politicians will find it very difficult to allocate more resources to any form of discretionary spending unless U.S. fiscal policy is transformed. These changes must address the bulging national debt and exponential growth in entitlements programs. Until these underlying issues are dealt with in a lasting way, the government will continue to build a precarious “house of cards,” a house in which we all reside.

Although budget deficits are expected to decline (and transition to surpluses) over the next decade, the long term-budget outlook is dismal. The Economic Assumptions and Analysis, submitted with the 2008 President's Budget, concludes that the long-run budget is on an "unsustainable path." The administration's projected receipts, outlays, surpluses (deficits), and debt as a percentage of GDP is portrayed in Table 3.⁵⁹

	1980	1990	2000	2010	2020	2030	2040	2060	2080
Receipts	19.0	18.0	20.9	18.3	18.3	18.3	18.3	18.3	18.3
Outlays:									
Discretionary	10.1	8.7	6.3	6.6	4.8	4.8	4.8	4.8	4.8
Mandatory:									
Social Security	4.3	4.3	4.2	4.2	4.9	5.8	6.0	6.1	6.3
Medicare	1.1	1.7	2.0	2.7	3.4	4.5	5.3	5.9	6.1
Medicaid	0.5	0.7	1.2	1.4	1.9	2.2	2.5	3.0	3.6
Other	3.7	3.2	2.4	2.3	1.8	1.5	1.3	1.0	0.9
Subtotal, mandatory	9.6	9.9	9.8	10.6	12.0	14.0	15.1	16.0	16.9
Net Interest	1.9	3.2	2.3	1.7	1.0	0.8	1.6	4.1	8.0
Total outlays	21.7	21.8	18.4	18.9	17.8	19.7	21.4	24.9	29.7
Surplus or Deficit (-)	-2.7	-3.9	2.4	-0.6	0.5	-1.4	-3.1	-6.6	-11.4
Primary Surplus or Deficit (-)	-0.8	-0.6	4.7	1.2	1.5	-0.5	-1.6	-2.5	-3.4
Federal Debt Held by the Public	26.1	42.0	35.1	35.2	18.7	17.1	31.5	82.0	160.3
Addendum, without the Budget's Mandatory Proposals:									
Mandatory Outlays	9.6	9.9	9.8	10.7	12.3	14.6	16.1	17.8	19.6
Surplus or Deficit (-)	-2.7	-3.9	2.4	-0.7	0.1	-2.3	-4.9	-10.7	-19.0
Primary Surplus or Deficit (-)	-0.8	-0.6	4.7	1.0	1.2	-1.1	-2.6	-4.3	-6.1
Federal Debt Held by the Public	26.1	42.0	35.1	35.5	21.1	24.4	47.6	130.3	262.1

Note: The figures shown in this table for 2020 and beyond are the product of a long-range forecasting model maintained by the Office of Management and Budget. This model is separate from the models and capabilities that produce detailed programmatic estimates in the Budget. It was designed to produce long-range forecasts based on additional assumptions regarding growth of the economy, the long-range evolution of specific programs, and the demographic and economic forces affecting those programs. The model, its assumptions, and sensitivity testing of those assumptions are presented in this chapter.

Table 4. Long-Term Federal Budget Projections.

It is assumed that receipts will remain steady at 18.3 percent of GDP and discretionary spending will bottom out at 4.8 percent of GDP. Nonetheless, structural deficits and huge debt ratios are expected to begin accumulating from 2030 to 2080. The negative future trends in deficit spending and debt will derive from steady growth in mandatory spending.

Increasing political pressure to deal with the pending fiscal disaster will make it much more difficult to protect DOD funding against future reductions. If the entitlements issue is not addressed in the next 5-10 years, the economic situation will have a detrimental impact on the security of the United States. If the past is any indication, politicians will not limit the solution set to increasing revenues (tax policies) and reducing mandatory spending (entitlements laws). Instead, discretionary spending will be a target of opportunity. Subsequently, the largest share of discretionary spending—defense appropriations—could well be in the center of the bull's eye. It follows that cutting procurement programs, like FCS, will be part of the solution.

Conclusion.

The United States Army is undeniably in the midst of a transformation effort of historical significance. It just happens that this effort is being introduced at a time when events of historical proportion are unfolding in Iraq, Afghanistan, and in other places that no longer seem so far away. Many have stated that America is in a long war. It is a war that has already come at a heavy price in lives as well as resources. Likewise, the Army's ambitious transformation plan will take decades to complete and require a substantial investment of military spending. It is without question that transforming a military force while simultaneously prosecuting a war is a huge undertaking.

But, there are other forces at work that act to blur the transformation vision. Two significant variables that may negatively shape transformation are (1) the additional costs associated with growing the force and (2) the likely assimilation of future cuts in military budgets. However, the most ominous threat to transformation, our economy, and perhaps our national security is the ride our nation is taking on a run away entitlements train. Drastic measures must soon be taken to bring this train under control. Otherwise, we are doomed for a disastrous fiscal collision.

So, the question remains, "does the Army have a solid transformation plan or are we building a house of cards?" The answer is yes! The Army has a pressing need, a bold vision, and a solid plan for transforming its force and modernizing its equipment. The "window of opportunity" to make the vision a reality remains open. Unfortunately, this window rests on a house of cards. If steps are not soon taken to restore the house, it will be beyond repair, and eventually collapse. Tragically, all who reside in the house—including Army transformation—could fall victim to the house's demise. Restoring the house will take a monumental effort by our national leaders—the President and Congress.

Endnotes

¹ Full speech by General Eric K. Shinseki, address to the Eisenhower Luncheon, 45th Annual Meeting of the Association of the United States Army, 12 October 1999, available at www.amc.army.mil/LOGCAP/docs/csavisionstatement.pdf; Internet, accessed 3 February 2007.

² Cahlink, George. "Future Combat Zone." *Government Executive* 37 (15 April 2005): 50-58. [database on-line]; available on ProQuest; accessed 3 February 2007.

³ George W. Bush, *National Security Strategy of the United States of America* (Washington, D.C.: The White House, 17 September 2002), 29.

⁴ Richard B. Myers, *National Military Strategy of the United States of America: A Strategy for Today; a Vision for Tomorrow* (Washington, D.C.: 2004), V.

⁵ The QDR is the Administration's statement on defense strategy, programs, and spending and is published every four years and submitted to Congress no later than the date on which the President submits the budget for the next fiscal year to Congress. The 2006 Quadrennial Defense Review establishes where the Department of Defense currently is and the direction the senior leadership believes the military needs to go to fulfill its responsibilities to the American people. See the report at <http://www.defenselink.mil/qdr/report/Report20060203.pdf>.

⁶ Donald H. Rumsfeld, *Quadrennial Defense Review Report* (Washington, D.C.: The Department of Defense, 2006), 43; available from <http://www.defenselink.mil/qdr/>; Internet; accessed 9 February 2007.

⁷ U.S. Congressional Budget Office, "The Army's Future Combat Systems Program and Alternatives: A CBO Study," August 2006; linked from *The Congressional Budget Office Home Page* at "Recent Publications," available from <http://www.cbo.gov>; Internet; accessed 13 January 2007.

⁸ The Department of Defense aims to maintain the average age of its fleets of aircraft and vehicles at or below half of their useful life span. At various times, the Army has defined the useful life of its armored vehicles as 20 or 30 years, yielding desired half-lives of 10 or 15 years. The Army's preference is to prevent the average age of the fleet from exceeding 10 years. For a discussion of desired fleet age, see Congressional Budget Office, *The Long-Term Implications of Current Defense Plans* (January 2003); available from <http://www.cbo.gov>; Internet; accessed 13 January 2007.

⁹ The *Army Posture Statement* (APS) describes how the Army is executing its plan for meeting the issues of today and better preparing for the challenges we will face tomorrow. It characterizes transformation as, "not as an end in itself; but rather, as a means for accomplishing our current mission, while working toward our vision for the future." For more information see Francis J. Harvey and Peter J. Schoomaker, *Army Posture Statement*, available from <http://www.army.mil/institution/leaders/posturestatement/>; Internet; accessed 9 February 2007.

¹⁰ The annually published *Army Modernization Plan* (AMP) provides a report on the Army's efforts to support our soldiers and maintain current readiness, while developing and fielding improved capabilities for tomorrow. It describes the flexible modernization and investment strategies required to place a priority on providing the best capabilities to the Army today, while also supporting a sustained transformation process. For more information see Francis J. Harvey and Peter J. Schoomaker, *2007 Army Modernization Plan*, available from <http://www.army.mil/features/MODPlan/2006>; Internet; accessed 9 February 2007.

¹¹ Francis J. Harvey and Peter J. Schoomaker, *2006 Posture Statement*, available from http://www.army.mil/aps/06/01_index.html; Internet; accessed 9 February 2007.

¹² Ibid.

¹³ Ibid.

¹⁴ U.S. Government Accountability Office, *Force Structure: Army Needs to Provide DOD and Congress More Visibility Regarding Modular Force Capabilities and Implementation Plans*, (Washington, D.C.: U.S. Government Accountability Office, September 2006), 7.

¹⁵ Harvey and Schoomaker, *2006 Posture Statement*.

¹⁶ U.S. Congressional Budget Office, "The Army's Future Combat Systems Program and Alternatives: A CBO Study.

¹⁷ Mark S. Bennett, ASA(FM&C), e-mail message to author, 9 March 2007.

¹⁸ For a more detailed description of the Army Future Combat System (FCS) Program see link provided from *The United States Army Homepage*, at "Future Combat Systems," available from <http://www.army.mil/fcs>; Internet.

¹⁹ Ronald O'Rourke, CRS Report for Congress, "Defense Transformation: Background and Oversight Issues for Congress," (Washington, D.C.: 9 November 2006), 12.

²⁰ In December 2004, the DOD Program Budget Decision No. 753 (PBD 753) directed the Army to "submit its Modularity requirements for FY 2005 and FY 2006 in supplemental requests" and provides \$5 billion per year from FY 2007 to FY 2011 for modularity, and directs the Army to find \$1.5 billion per year in FY 2006 to FY 2008 from reengineering its business practices to be applied to Army modularization. See Program Budget Decision 753, Office of the Secretary of Defense, December 23, 2004, 1-6.

²¹ U.S. Government Accountability Office, *Force Structure: Army Needs to Provide DOD and Congress More Visibility Regarding Modular Force Capabilities and Implementation Plans*, (Washington, D.C.: U.S. Government Accountability Office, September 2006), 10.

²² *Ibid.*, 10.

²³ CBO's analysis of the Administrations Plan for the FCS follows: the research and development (R&D) portion of the program is scheduled to extend through 2016 and cost a total of \$21 billion from 2007 to 2016. The Army estimates that total procurement costs for the first 15 brigades' worth of systems will be about \$100 billion, or an average unit procurement cost per brigade of \$6.7 billion. The Army plans to start its annual purchases of 1.5 brigades' worth of equipment in 2015. See U.S. Congressional Budget Office, "The Army's Future Combat Systems Program and Alternatives: A CBO Study," August 2006; linked from *The Congressional Budget Office Home Page* at "Recent Publications," available from <http://www.cbo.gov>; Internet; accessed 13 January 2007.

²⁴ U.S. Congressional Budget Office, *The Army's Future Combat Systems Program and Alternatives: A CBO Study*.

²⁵ "FCS Myths & Realities," 18 September 2006, linked from *The United States Army Homepage* at "Future Combat System," available from <http://www.army.mil/fcs/myths>; Internet; accessed 16 February 2007.

²⁶ U.S. Congressional Budget Office, *The Army's Future Combat Systems Program and Alternatives: A CBO Study*.

²⁷ Harvey and Schoomaker, *2006 Posture Statement*.

²⁸ CRS Report for Congress, "The Army's Future Combat System: Background and Issues for Congress," by Andrew Feickert, (Washington, D.C.: 5 May 2006), 8.

²⁹ For a more detailed description of the restructured FCS program see the CRS Report for Congress, "The Army's Future Combat System: Background and Issues for Congress," by Andrew Feickert, (Washington, D.C.: 5 May 2006).

³⁰ "Fiscal Year 2007 Budget Highlights," February 2006, linked from *The Assistant Secretary of the Army for Financial Management and Comptroller Home Page* at "FY 2007 Presidents Budget Highlights," available from <http://www.asafm.army.mil/budget/fybm/fybm.asp>; Internet; accessed 30 December 2006.

³¹ DiMascio, 2.

³² *Ibid.*, 2.

³³ David M. Walker, "DOD Transformation: Challenges and Opportunities," briefing slides, Carlisle Barracks, U.S. Army War College, 12 February 2006.

³⁴ The Great Society initiative greatly increased social welfare programs such as Social Security, Medicare, and Medicaid. For more information on the impact of entitlement programs on the fiscal outlook see Dennis S. Ippolito, *Budget Policy, Deficits, and Defense: A Fiscal Framework for Defense Spending* (Carlisle, PA: Strategic Studies Institute, June 2005).

³⁵ *Ibid.*, 25.

³⁶ That reduction in future national income can occur either because interest rates rise and domestic investment falls, or because we borrow more from foreigners and therefore owe more to them in the future. See William Gale and Peter Orszag, "The US Budget Deficit on an Unsustainable Path," *New Economy*, 2004, 240.

³⁷ The Gross Domestic Product (GDP) is the measure of the health of the U.S. economy. GDP is the total market value, or output, of the goods and services produced by labor and capital located within the United States, regardless of nationality, during a year. The Bureau of Economic Analysis (BEA) produces the GDP figures and has done so since GDP became the unit of measure in 1991. See Association of the United States Army, *Fiscal Year 2007 Army Budget: An Analysis* (Arlington: Institute of Land Warfare, 2006), 48.

³⁸ Walker.

³⁹ Budget projections are based upon economic and technical assumptions that are subject to considerable uncertainty. Rates of economic growth, inflation, and productivity directly and indirectly affect federal spending and revenues, and unanticipated changes in these economic variables can substantially change even short-term budget forecasts. See Dennis S. Ippolito, *Budget Policy and Fiscal Risk: Implications for Defense* (Carlisle, PA: Strategic Studies Institute, 2001), 20.

⁴⁰ Two key projections are used to support CBO's favorable short-term outlook. First, revenues will rise from 18.6 percent of GDP this year to almost 20 percent of GDP in 2012 and remain at that historically high level through 2017. Secondly, outlays for discretionary programs will decline from 7.8 percent of GDP last year to 5.8 percent of GDP by 2017—a lower percentage than any recorded in the past 45 years. For more information on the mid-term economic outlook see U.S. Congressional Budget Office, "The Budget and Economic Outlook: Fiscal Years 2008 to 2017;" linked from *The Congressional Budget Office Home Page* at "Recent Publications," available from <http://www.cbo.gov>; Internet; accessed 19 February 2007.

⁴¹ Association of the United States Army, *Fiscal Year 2007 Army Budget: An Analysis* (Arlington: Institute of Land Warfare, 2006), 3.

⁴² Feickert, 4.

⁴³ U.S. Government Accountability Office, *Force Structure: Army Needs to Provide DOD and Congress More Visibility Regarding Modular Force Capabilities and Implementation Plans*, (Washington, D.C.: U.S. Government Accountability Office, September 2006), 10.

⁴⁴ DiMascio, 1.

⁴⁵ Association of the United States Army, *Fiscal Year 2007 Army Budget: An Analysis* (Arlington: Institute of Land Warfare, 2006), 48.

⁴⁶ Feickert, 17.

⁴⁷ President George W. Bush, "The State of the Union," 23 January 2007, linked from *The White House Home Page* at "Major Speeches," available from <http://www.whitehouse.gov>; Internet; accessed 20 February 2007.

⁴⁸ U.S. Government Accountability Office, *Military Personnel: DOD Needs to Provide a Better Link Between Its Defense Strategy and Military Personnel Requirements*, (Washington, D.C.: U.S. Government Accountability Office, January 2007), 15.

⁴⁹ Feickert, 4.

⁵⁰ A fully mature technology, according to GAO's definition, is one that has been demonstrated in a prototype in an operational environment. In contrast, the Army considers a system that has been demonstrated in a prototype in a relevant environment to be sufficiently mature to be used in the SDD phase. The April 2005 independent assessment (Office of the Deputy Assistant Secretary of the Army for Research and Technology, *Technology Readiness Assessment Update*) was cited in Government Accountability Office, *Defense Acquisitions: Improved Business Case Is Needed for Future Combat System's Successful Outcome*, GAO-06-367 (March 2006).

⁵¹ U.S. Government Accountability Office, *Defense Acquisitions: Improved Business Case is Needed for Future Combat System's Successful Outcome* (Washington, D.C.: U.S. Government Accountability Office, March 2006), 0.

⁵² U.S. Government Accountability Office, *Force Structure: Capabilities and Cost of Army Modular Force Remain Uncertain* (Washington, D.C.: U.S. Government Accountability Office, March 2006), 0.

⁵³ Feickert, 11.

⁵⁴ U.S. Government Accountability Office, *Force Structure: Capabilities and Cost of Army Modular Force Remain Uncertain* (Washington, D.C.: U.S. Government Accountability Office, March 2006), 0.

⁵⁵ Harvey Schoomaker, *2006 Posture Statement*,

⁵⁶ Procurement of FCS components is often discussed in terms of a brigade's worth of equipment, which includes more than 300 manned vehicles, approximately 230 unmanned ground vehicles, more than 200 UAVs, and numerous additional unattended ground sensors, launch systems, and associated munitions. Source: U.S. Congressional Budget Office, "The Army's Future Combat Systems Program and Alternatives: A CBO Study," August 2006; linked from *The Congressional Budget Office Home Page* at "Recent Publications," available from <http://www.cbo.gov>; Internet; accessed 13 January 2007.

⁵⁷ Harvey and Peter J. Schoomaker, *2007 Posture Statement*, available from <http://www.army.mil/institution/leaders/posturestatement/>; Internet; accessed 9 March 2007.

⁵⁸ Gary J. Schmitt, "Hollow Military 2.0," 6 November 2006, available from <http://frontpagemag.com/Articles/ReadArticle.asp?ID=25315>; Internet; accessed 1 January 2006.

⁵⁹ U.S. Office of Management and Budget, "Budget of the United States Government: Economic Assumptions and Analysis," Fiscal Year 2008, linked from *The Office of Management and Budget Home Page*, at "FY 2008 Budget," available from <http://www.whitehouse.gov/omb/>; Internet; accessed 24 February 2007.